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ABSTRACT

The study examined the value of teaching reading skills to learning disabled (LD) fourth to sixth graders through the content areas. Four LD resource teachers implemented the year-long program with 12 experimental and 10 control subjects. Experimental subjects were taught specific reading skills through their Social Studies and/or Science curricula, supplemented with reading and language arts materials when appropriate. Control subjects were taught reading skills using whatever methods and materials were normally used in the LD resource room. Results did not indicate that there were any statistically significant differences between the effectiveness of using conventional LD materials and teaching reading skills through the content areas when the outcomes of reading gain scores and improvement in learners' self-perception were considered, although experimental subjects appeared to achieve better in the content areas and feel better about academic learning and schooling. (DB)

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TEACHING READING SKILLS TO LEARNING-DISABLED FOURTH TO SIXTH GRADERS THROUGH CONTENT AREAS

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Recent research in neuroscience suggests that learning disablilities could be a matter of brain functions (Languis & Wittrock, 1986; Lubar, 1985). This may partially explain why learning disabled (LD) students, in spite of normal or above normal intelligence, and a decade of mandated special education services (P.L. 94-142, 1975), still struggle with academic and social problems in the schools. From childhood through adolescence to adulthood, LD individuals tend to achieve significantly below their intellectual potential, develop low self-concept, and exhibit extended dependence on their families and society (Alley, Deshler, Clark, Schumaker & Warner, 1983; Gaskins & Baron, 1985; Rogers & Saklofske, 1985; Shaw & Norlander, 1986). There is increasing evidence that LD characteristics, such as reading and language disorders, persist into adult life (Mangtrum & Stritchart, 1985).

If LD is indeed a condition that cannot be reverted, just as most sensory and physical handicaps are, then the hitherto emphasis on remediation as the intervention strategy for LD should be shifted to compensation at a much earlier stage; perhaps at the upper elementary grades when learning problems could be more definitively attributed to deviance rather than differential rates of maturation. This is why experts in the field of LD are considering the re-examination of intervention strategies as one of the most critical current issues (Adelman & Taylor, 1985).

Learning disabilities could occur in various areas of human performance. In the school settings, the most dominant and troublesome are reading and language arts disorders. Presently, LD students with deficits in reading and language arts generally go to the special-education resource rooms for reading instruction. Some so-called LD students did catch up with their skills and have since then returned to their regular reading classes. But the majority, especially those with severe reading disability, are seldom remediated. Instead, the gap in reading achievement between LD students and regular students tends to widen as students advance in grade levels. It also seems that the longer LD students are placed in the resource rooms for reading, the farther they fall behind their classmates in reading skills. Meanwhile, as the demands on reading and language competencies in the content areas accelerate around the fourth grade, LD students begin to experience more problems and failing grades in language arts as well as content subjects. As school achievement plummets, so do the self-concept and social-emotional well-being of a lot of upper elementary LD students - and a long, humiliating and frustrating school experience ahead. No wonder students become more negative towards reading by the time they reach fourth to sixth grades (Parker & Paradis, 1986)!

If certain reading and language disabilities cannot be eradicated, and, as most LD students can read at the level of the low to lowest reading groups in the regular classrooms, it may be more beneficial for LD students who are not severely reading disabled to stay in their own classes for reading. In the resource room, they could work on their specific reading deficiencies through the medium of the content areas. Thus they may not only receive intensive instruction in their deficit skills as specified in their IEP's, but also obtain assistance in the content areas which, like reading, also involve word recognition, vocabulary, syntax, grammar, oral and silent reading, as well as reading comprehension and application (Comerford, 1981; Santeusanio, 1983). As LD students improve in their content areas, they may maintain or develop more positive perception about themselves as learners. They may perceive that academic learning is an attainable goal, and the public school a tolerable if not a pleasant learning environment.

The purpose of this study was to investigate whether teaching reading skills to LD fourth to sixth graders through the content areas is a viable alternative to teaching reading skills through regular LD curricula. Specific reserch questions were: 1) Would teaching reading skills through the content areas (experimental method) increase LD students' gain scores in reading, as effectively as common current LD practices (control method)? 2) Compared to control students, would experimental students earn higher grades in the content areas as a result of receiving reading instruction in the content areas? 3) Would experimental students maintain or improve their perceptions about themselves as learners, about academic learning, and about the public schools?

Method

Setting and Subjects

The research, with a modified pretest-posttest control group design (Campbell & Stanley, 1963), was conducted in three southeastern Kentucky counties. It was implemented in the natural settings of four LD resource rooms by the LD resource teachers therein, under the direction of the investigator. One resource teacher used strictly the experimental approach while one used the control method. The other two resource teachers used both strategies: the experimental method with students who could take reading in their home rooms and come to the resource rooms for specific reading skills through the content areas; and the control method with students who could only schedule in reading in the resource rooms. The teachers were selected based on comparable teaching effectiveness and willingness to participate in this study.

The fourth to sixth grade LD students enrolled in the four resouce rooms, with identified deficits in reading, served as experimental and control subjects. Permission for their participation had been obtained from their superintendents, building principals, teachers and parents. Because of logistics and attrition, only twelve experimental and ten control subjects completed the year-long research.

Instruments

The Diagnostic Reading Scales (Spache, 1981) was administered for research question #1. A 9-item likert-type Self-Perception Inventory was developed by the investigator for question #3. Students' letter-grades for Social Studies and Science in the Spring semester were recorded for research question #2.

Procedures

Pretest. In September 1987, the researcher administered the individualized Spache Diagnostic Reading Scales to all of the experimental and control students in their schools. Immediately following the reading test, each student orally responded to the perception questions as the researcher read them, one by one, then circled student responses on respective Invertory form.

Reading Instruction. The control students were taught by their resource teachers, to increase or to remediate reading skills, using whatever LD methods and materials that they normally used in the resource rooms. The experimental students were also taught specific reading skills through their Social Studies and/or Science curricula, supplemented with reading and language arts materials when appropriate. The researcher consulted with the experimental teachers on demand.

Posttest. In April-May 1988, the researcher administered the Spache Diagnostic Reading Scales and the Self-Perception Invertory again to all of the

available experimental and control students. Students' Social Studies and/or Science grades for the Spring semester, if available, were recorded in June.

RESULTS

Reading Gains

Reading gain scores were computed individually for each student from the pre-post test scores based on the Diagnostic Reading Scales (Spache, 1981). Gains in Word Recognition were also recorded by signs (+, Ø, or -). Scores were summed for the experimental and control groups respectively (Tables 1 & 2).

Insert Tables 1 and 2 here

Both the Mann-Whitney-Wilcoxon and the Kruskal-Wallis nonparametric statistics were performed on the reading gain scores. There were no statistically significant differences between the two groups, in ranked or unranked gain scores. Nevertheless, according to descriptive statistics (Tables 1 & 2), the experimental group had a total gain of 6.7 grade scores, averaging Ø.6 per student, with 1Ø/12 students improved in the Word Recognition subtest. The control group, on the other hand, had a total gain of 2.3 grade scores, an average of Ø.2 per student, with two students regressing in posttest, losing 1.Ø and Ø.2 grade respectively; and 7/1Ø students made gains in Word Recognition. But, unlike the experimental group which had only 5/12 students increasing in grade scores ranging from Ø.7 to 2.Ø; 6/1Ø of the control group obtained gain scores, though smaller in size, ranging from Ø.4 to 1.Ø

Improvement in Self-Peception

There were insignificant quantitative changes in the Self-Perception scores in both the experimental and control groups, in all categories of student's 1) perception of self as a learner; 2) perception of academic learning; 3) perception of the public school as learning environment; and 4) the summed total of the above. Therefore, instead of nonparametric statistics, the results were analyzed and presented in the form of prescriptive data (Tables 1 & 2).

Neither were there marked qualitative differences between the experimental and control students in almost all aspects of perception; except with regard to academic learning, where experimental students scored slightly more improvement than their control counterparts during the posttest. When compared with other outcome variables, there seemed to be less correlation between students' perception scores and their reading gain scores than between their perception scores and letter grades in the content areas.

Performance in Content Areas

Letter grades for both Social Studies and Science could not be obtained for all of the participating students. Based on the available data, 58% of 12 experimental students received A's and B's in Social Studies and 43% of 7 experimental students scored B's in Science at the end of the 1987-88 school year. By contrast, only 22% of 8 control students scored B's in Social Studies and also 22% of 8 scored B's in Science in June 1988. Moreover, less than 17% and 3Ø% of the experimental students received D's or lower grades in Social

Studies and Science respectively; while over 63% and 37% of the control group scored D's or "Unsatisfactory" in Social Studies and Science respectively (Tables 1 & 2).

DISCUSSION

Results from this research did not indicate that there were any statistical significance between the effectiveness of using conventional LD materials and approaches to teach reading and language arts, and teaching reading skills through the content areas, when the outcomes of reading gain scores and improvement in learners' self-perception were considered. However, fourth to sixth grade LD students may have benefited from the latter approach, as they received reading instruction and needed assistance in their Social Studies and/or Science curricular materials. As a group, they seemed to be able to achieve better in these content areas and scored higher grades, when compared with the regular LD students. They even seemed to feel more favorably about academic learning and schooling, after one year of such instructional service.

Not every LD student would benefit from the experimental approach, especially when reading skills is the specific outcome variable. Teaching reading through "regular" LD reading methods and materials may insure improvement for more students, as seen in the control subjects, even though the gains for most students were rather modest. But for certain students, perhaps those who are bright, eager to learn, yet hitherto hampered by reading problems, learning reading and content areas at once could be a needed and viable alternative. When LD students reach the upper elementary grades, with greater demands on reading competencies in more curricular areas, they could not help but become more aware of their inadequacies and frustration. They need immediate practical help to get them through academics, not just reading and language arts. They need tangible evidence such as better course grades, to convince them that they can learn, that school learning is achievable, and they could preserve their self-esteeem in spite of their predicaments.

Teaching reading skills through the content areas, as a compensatory strategy, may not work for all LD students. However, as compassionate and responsible teachers, we owe it to our students to experiment with divergent methods to enable deserving students to achieve academically and emotionally commensurate with their abilities. Finding the right methods for the right learners at a very crucial stage of their school life - the upper elementary school years, is one way to decrease some LD students' underachievement, social-emotional problems, and prevent them from dropping out of school prematurely.

Finally, this research was exploratory. A longer period of study, and more refined and sensitive instruments to measure movements in reading achievement and self-perception will facilitate more accurate evaluation of the relative merits of this experimental approach. This research was also structured very loosely by intent, so that it could fit in and accommodate diverse "control" and "research" variables. The objective is that practitioners could replicate or modify it in their unique environment and settings, and share their findings with all who are eager to expand their repertoire of teaching LD students.

Table 1. Individual Student Performance in reading, self-perception and content areas

Student #		Reading Gains Total Score	Word R.	Self-Perception Self	Learn'g	School	total	Content Area SS	Sci
Experiment	1	Ø	+	+	–	+	+	A	B
"	2	Ø	Ø	–	+	Ø	+	B	B
"	3	Ø	+	+	+	Ø	+	B	B
"	4	Ø.7	+	Ø	–	Ø	–	C-	/
"	5	Ø	+	–	–	+	–	Unsat.	/
"	6	1.Ø	+	+	–	Ø	–	C-	/
"	7	1.3	+	Ø	Ø	Ø	Ø	D	/
"	8	Ø	+	–	+	+	+	C	/
"	9	2.Ø	+	–	Ø	Ø	–	A	D
"	1Ø	Ø	+	Ø	–	+	–	A	B
"	11	1.7	+	Ø	+	Ø	+	A+	C
"	12	Ø	Ø	Ø	Ø	Ø	Ø	A	F
Control	1	Ø.4	+	Ø	Ø	Ø	Ø	B	B
"	2	Ø.6	+	–	–	Ø	–	D	C
"	3	-1.Ø	–	–	–	+	Ø	D	D
"	4	-Ø.2	Ø	Ø	Ø	Ø	Ø	Sat.	Sat.
"	5	Ø	Ø	–	Ø	+	–	D	D
"	6	1.Ø	+	–	–	Ø	–	D	D+
"	7	Ø	+	Ø	+	+	+	B	B
"	8	Ø.7	+	+	Ø	+	+	C	C-
"	9	Ø.4	+	–	Ø	–	–	Unsat.	/
"	1Ø	Ø.4	+	+	Ø	Ø	+	/	C

Table 2. Summary Group Performace in Reading, Self-Perception and Content Areas

Group	Reading Gains Total Score	Word R.	Self-Perception Self	Learn'g	School	Total	Content Area SS	Sci.
Experimental n=12	+6.7	1Ø(+)	3(+)	4(+)	4(+)	5(+)	7(A,B)	4(B)
			5(Ø)	3(Ø)	8(Ø)	2(Ø)	3(C)	1(C)
	Ø.6 per Sub.		4(-)	5(-)	Ø(-)	5(-)	2(D,U)	2(D,F)
Control n=1Ø	+2.3	7(+)	2(+)	1(+)	4(+)	3(+)	2(B)	2(B)
	-1.2	1(-)	3(Ø)	6(Ø)	5(Ø)	3(Ø)	2(C,S)	4(C,S)
	Ø.2 per Sub.		5(-)	3(-)	1(-)	4(-)	5(D,U)	3(D)

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